

AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1. (Currently amended) A vacuum arc source including a target with a surface for operating an arc discharge, wherein the target is arranged in an effective area of a device for producing a magnetic field, said device for producing the magnetic field comprising at least two magnet systems with ~~opposite~~ oppositely oriented poles and being designed so that the component B_{\perp} of the magnetic field perpendicular to the surface has basically constant values or is zero over a greater part of the surface.

2. (Previously presented) The arc source in Claim 1, the value of the perpendicular magnetic field component B_{\perp} being smaller than 30 Gauss.

3. (Previously presented) The arc source in claim 1, wherein the greater part of the surface extends from the middle of the target surface to the rim, and so that the greater part includes at least 50% of the geometrically determining mass or masses of the target surface.

4. (Previously presented) The arc source in claim 1, wherein on the rim of the target surface, the values $B_{\perp R}$ of the perpendicular magnetic field component rise, fall and/or change signs compared to the values $B_{\perp M}$ of said field in the middle of the target surface.

5. (Previously presented) The arc source in claim 1, wherein the value of the parallel magnetic field component B_{\parallel} is basically zero in the middle and rises linearly in the direction of the rim of the target surface.

6. (Previously presented) The arc source in claim 1, wherein a first of the at least two magnet systems with opposite poles includes at least one first electromagnetic coil placed behind the target.

7. (Previously presented) The arc source in claim 6, the first coil having inner dimensions that basically coincide with a deviation from a maximum of plus/minus 30% with a projection of the outer dimensions of the surface.

8. (Previously presented) The arc source in claim 1, a first of the at least two magnet systems with opposite poles comprising one or more permanent magnets placed behind the target.

9. (Previously presented) The arc source in claim 8, said one or more permanent magnets having low field strength, or having a distance from the target such that the field strength on the surface of the target is low.

10. (Previously presented) The arc source in claim 6, wherein a second of the at least two magnet systems with opposite poles has at least one second coil arranged coaxially to the first magnet system.

11. (Previously presented) The arc source in claim 10, the second coil being placed behind the first magnet system.

12. (Previously presented) The arc source in claim 10, the second coil being placed at some distance in front of the target.

13. (Previously presented) The arc source in claim 10, wherein the second coil includes the first magnet system at least partly coaxially.

14. (Previously presented) The arc source in claim 10, the second coil having a higher number of windings and/or a larger diameter than the first coil.

15. (Previously presented) The arc source in claim 1, the target being connected as a cathode.

16. (Previously presented) The arc source in claim 1, the target being connected as an anode.

17. (withdrawn) A vacuum system comprising at least one arc source according to claim 1 or 10.

18. (withdrawn) The system in Claim 17, wherein said at least one arc source works in the direction of the axis of the system and has at least one other electromagnetic coil arranged concentrically to the axis of the system in order to deflect the plasma beam produced.

19. (withdrawn) The system in Claim 18, wherein the at least one other coil is connected to at least one time-altered current source with a control unit, in order to deflect the alignment of the plasma beam produced by the at least one arc source variably.

20. (withdrawn) The system in claim 17, wherein at least two other electromagnetic coils are arranged concentrically to the axis of the system and have a different or the same diameter or a design basically corresponding to a Helmholtz coil arrangement.

21. (withdrawn) A method of operating an arc discharge on a target surface of an arc source, wherein a magnetic field is produced on the surface with the device for producing a magnetic field from at least two magnetic systems with opposite poles, so that the perpendicular component B_{\perp} of the magnetic field runs over a greater part of the surface basically constantly or is zero.

22. (withdrawn) The method in Claim 21, the value B_{\perp} of the perpendicular magnetic field component being smaller than 30 Gauss.

23. (withdrawn) The method in claim 21, the magnetic field being set so that the greater part of the surface with component B_{\perp} running basically constantly near or at zero extends from the middle of the target surface to the rim, so that the middle includes at least 50% of the geometrically determining mass or masses of the target surface.

24. (withdrawn) The method in Claim 21, the values $B_{\perp R}$ on the rim of the target surface of the perpendicular magnetic field components are set to rise, fall and/or change signs compared to the values $B_{\perp M}$ of the magnetic field in the middle of the target surface.

25. (withdrawn) The method in Claim 21, the value of the parallel magnetic field component B_{\parallel} is basically set at zero in the middle and rises in the direction of the rim of the target surfacesymmetrically in relation to the middle of the target, so that the force acting tangentially on the spark clockwise or counter-clockwise rises toward the rim of the target.

26. (withdrawn) The method in claim 21, a magnetic field basically perpendicular to the surface is also produced in an area in front of the target.

27. (withdrawn) The method in claim 21, the magnetic field strength is set to correspond to the target material and/or target thickness.

28. (withdrawn) The method in claim 21, the device producing the magnetic field comprising at least one coil placed behind the target, and a voltage source applied to the at least one coil to adjust the magnetic field, so that current flows in a first direction.

29. (withdrawn) The method in claim 21, the device for producing the magnetic field comprising at least one magnet system made up of one or more permanent magnets placed behind the target.

30. (withdrawn) The method in claim 28, said device further comprising at least one second coil placed behind, in front or around the target, wherein to adjust the magnetic field, a voltage is applied to the second coil, so that a second magnetic field is produced that is directed opposite the magnetic field produced by the first magnet system.

31. (withdrawn) A method of coating a workpiece using one of the methods in claims 30.

32. (canceled)

33. (Previously presented) The arc source in claim 1, the value of the perpendicular magnetic field component B_{\perp} being smaller than 10 Gauss over the greater part of said surface.

34. (Previously presented) The arc source in claim 3, said greater part includes at least 60% of the geometrically determining mass or masses of the target surface.